



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/782,852

02/23/2004

Takahiro Goto

Q79959

5491

23373 7590 11/14/2007
SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

EOFF, ANCA

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

11/14/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/782,852	Applicant(s) GOTO, TAKAHIRO	
	Examiner Anca Eoff	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 30 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 10 and 13-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 10 and 13-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The foreign priority document JP 2003-44090, filed on February 21, 2003 was received and acknowledged. However, in order to benefit of the earlier filing date, a certified English translation is required.
2. Claims 1, 10 and 13-24 are pending in the application. Claims 2-9 and 11-12 are canceled.

Continued Examination Under 37 CFR 1.114

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 30, 2007 has been entered.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 10, 13-14, 16-18 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoshima et al. (EP 1 235 107) in view of Iwamoto et al. (US Patent 5,866,298).

With regard to claim 1, Aoshima et al. disclose a photopolymerizable composition used as a recording layer in a negative planographic printing plate precursor (abstract). As a support /substrate for the recording layer of the planographic printing plate precursor, polyester films and aluminum plates are preferable (par.0066)

The photopolymerizable composition comprises:

- a polymerizable compound that has at least one radical-polymerizable ethylenically unsaturated double bond in a molecule (abstract);
- a radical polymerization initiator (abstract), which can be a sulfonium salt (see formula V in par.0026);
- a binder polymer (abstract), which is a polymer having the weight average molecular weight of 5,000 or more, preferably 10,000 to 300,000 (par.0039), and
- a compound generating heat by infrared exposure (abstract), referred to as "infrared absorbent" in par.0043.

However, Aoshima et al. do not disclose that the photopolymerizable composition used in a negative planographic printing plate precursor comprises a compound having a weight average molecular weight of 3,000 or less and having at least one carboxylic acid group, such as a trimellitic acid derivative, a pyromellitic acid derivative, a succinic acid derivative or a glycine derivative as required by the instant application.

Iwamoto et al. disclose a radiation sensitive composition comprising a binder polymer, a polyfunctional monomer and a photopolymerization initiator (abstract). The binder polymer of Iwamoto et al. is preferably a copolymer made from a monomer mixture which contains an ethylenically unsaturated monomer having at least one carboxyl group (column 5, lines 4-7), with specific examples given in column 6, lines 20-34. The radiation sensitive composition of Iwamoto et al. acts as a negative resist, since a developer is used to remove the part of the coated film upon which no light has been shone (column 15, lines 19-21).

The preferred polyfunctional monomer are polyacrylate or polymethacrylate (column 7, lines 18-40), with more than one ethylenically unsaturated double bonds in the molecule.

Iwamoto et al. further disclose that an organic acid may be added to the radiation sensitive composition, for improving the solubility of the coating formed by the composition in an alkaline developing solution and for reducing residual insoluble matters after the development treatment, when the binder is a carboxyl group-containing polymer (column 13, line 64-column 14, line 4).

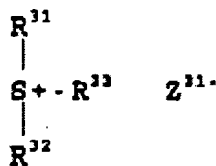
The acids that can be added to the photosensitive composition can be phenyl-group containing carboxylic acids, such as trimellitic acid (molecular weight 210.15 g/mol) or pyromellitic acid (molecular weight 254.15 g/mol) (column 14, lines 30-31) or aliphatic dicarboxylic acids, such as succinic acid (molecular weight 118.09 g/mol) (column 14, lines 12-13).

Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to include organic acids such as pyromellitic acid, trimellitic acid or succinic acid as disclosed by Iwamoto et al. in the photopolymerizable composition of Aoshima et al., in order to improve the solubility of the coating in an alkaline developing solution and to reduce the residual insoluble matters after the development process (Iwamoto et al., column 13, line 64-column 14, line 4).

With regard to claim 10, Aoshima et al. further disclose that the photopolymerizable composition used as a recording layer in a planographic printing plate is protected by a protective layer that blocks oxygen (par.0013).

With regard to claims 13, Iwamoto et al. further disclose that the organic acid is comprised in the photosensitive composition in an amount from 0.01 to 10 wt.% (column 14, lines 44-47).

With regard to claim 14, Aoshima et al. disclose that the radical polymerization initiator can be a sulfonium salt represented by the formula (1)



(1) (formula V in par.0026), wherein R_{31} , R_{32} , R_{33} may be the same or different and represent an optionally substituted hydrocarbon group having 20 or less carbon atoms and Z^{31-} represents a counterion selected from the group consisting on a

halogen ion, a perchlorate ion, a tetrafluoroborate ion, a hexafluorophosphate ion and a sulfonate ion (par.0027 and par.0029).

With regard to claims 16-17, Aoshima et al. further disclose that the compound that generates heat by infrared exposure (also referred to as an "infrared absorbent") is a dye or pigment having a maximum absorption wavelength of 760 nm to 1,200 nm (par.0043), such as cyanine dyes, squarylium dyes or pyrillium salts (par.0045).

With regard to claim 18, Aoshima et al. further disclose that the amount (solid content) of the recording layer that has been coated on the support and dried is preferably between 0.5 to 5.0 g/m² (par.0064).

With regard to claim 20, Aoshima et al. further disclose that the planographic printing plate precursor is exposed to a solid state laser or a semiconductor laser that radiate infrared rays having a wavelength of 760 nm to 1,200 nm (par.0080).

With regard to claim 21, Aoshima et al. further disclose a photopolymerizable composition comprising a binder polymer having a molecular weight of 130,000 (par.0096).

With regard to claim 22, Aoshima et al. further disclose that the aluminum substrate is subjected to a roughening treatment (par.0068, par.0071).

With regard to claim 23, Aoshima et al. further disclose that the aluminum substrate is subjected to anodizing treatment (par.0073-0074).

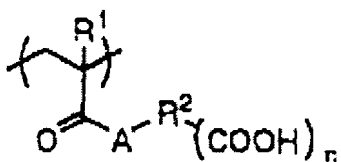
With regard to claim 24, Aoshima et al. further disclose that an oxide film is usually formed on the support by anodizing the surface after the foregoing treatment to

improve the water retention. This is equivalent to the hydrophilicity-conferring treatment of the instant application.

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoshima et al. (EP 1 235 107) in view of Iwamoto et al. (US Patent 5,866,298) as applied to claim 1 above and in further view of Oshima et al. (EP 1 176 467).

With regard to claims 1 and 15, Aoshima et al. clearly teach a photopolymerizable composition comprising a binder polymers having a carboxylic group in the side chain and having a molecular weight of 5,000 or more, specifically 10,000 to 300,000 (par.0035-0036, par.0039 and par.0041) as applied to claim 1 but fail to disclose that the binder polymer has the structure represented by the formula (i) of claim 15 of the instant application.

Oshima et al. disclose a negative working photosensitive lithographic printing plate comprising a photosensitive layer, wherein the photosensitive layer comprises a polymeric binder having repeating units represented by the formula (2):



(2) (formula (I) in par.0011), wherein R^1 represents a hydrogen atom or a methyl group, R^2 represents a hydrocarbon with an alicyclic structure and 3 to 30 carbon atoms and A represents an oxygen atom or $-\text{NR}^3$ group, where R^3 represents a

hydrogen atom or a monovalent hydrocarbon group with 1 to 10 carbon atoms and n is an integer from 1 to 5 (par.0012). The binder having incorporated a highly hydrophobic alicyclic hydrocarbon structure R² in the vicinity of a carboxylic acid imparts the printing durability so, printing durability and excellent productivity can be simultaneously attained (par.0013).

Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to use the polymeric binder of Oshima et al., in the photopolymerizable composition of modified Aoshima with reasonable expectation of improving the printing durability (Oshima et al., par.0013).

7. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoshima et al. (EP 1 235 107) in view of Iwamoto et al. (US Patent 5,866,298) as applied to claim 10 above and in further view of Kunita (US Patent 6,476,092).

With regard to claims 10 and 19, Aoshima et al. disclose that the photopolymerizable composition layer is covered with a protective layer as applied to claim 10 but fail to disclose that the main component of the protective layer is polyvinyl alcohol.

Kunita discloses a lithographic printing plate having a protective layer provided on the photopolymerizable composition. The protective layer prevents basic substances and the like present in the air, which inhibit the image-formation reaction caused in the photosensitive layer upon exposure, from mixing into the photosensitive layer and thereby enables the exposure in the air (column 131, lines 56-61). Polyvinyl alcohol is

preferably used as main component because most advantageous results can be given to the fundamental properties as oxygen shutting out property and development removability (column 132, lines 8-12).

Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to use polyvinyl alcohol as main component for the protective layer of modified Aoshima, as disclosed by Kunita et al., in order to take advantage of the oxygen blocking properties and the developer removability of the polyvinyl alcohol (Kunita, column 132, lines 8-12).

Response to Amendment

8. The objection to claim 19 is withdrawn following the applicant's amendment.

Response to Arguments

9. Applicant's arguments filed on October 30, 2007 have been fully considered but they are not persuasive: The applicant is claiming that one of ordinary skill in the art would have no motivation to combine the teachings of Aoshima et al. (EP 1 235 107) and Iwamoto et al. (US Patent 5,866,298) since Aoshima et al. refers to a planographic printing plate precursor and Iwamoto et al. refers to a color filters. However, both references refer to negative-working photosensitive composition having the same components, as shown in paragraph 4 of the previous Office Action and as shown below:

Aoshima et al. disclose a negative-working photopolymerizable composition comprising A) a polymerizable compound having at least one radical-polymerizable ethylenically unsaturated double bond in the molecule, B) a radical polymerization initiator, C) a binder polymer (abstract).

Iwamoto et al. disclose a composition comprising a binder B), a polyfunctional monomer C) and a photopolymerization initiator D) (abstract). The composition acts as a negative-working resist, since the unexposed areas of the resist are removed during development (column 15, lines 21-22).

Iwamoto et al. clearly teach the advantages of using acids, such as trimellitic acid, pyromellitic acid and succinic acid in the composition, especially in a composition comprising a carboxylic group-containing binder (column 13, line 66-column 14, line 4).

Therefore, it is the examiner's position that the compositions of Aoshima et al. and Iwamoto et al. are similar and one of ordinary skill in the art at the time of the

invention would have the motivation to combine the teachings of the two above-mentioned references.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anca Eoff whose telephone number is 571-272-9810.

The examiner can normally be reached on Monday-Friday, 6:30 AM-4:00 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AE *AE*

Anca Eoff